

NOTES ON THE GENERA *CYPRÆA* AND *TRIVIA*.

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Read 12th March, 1909.

PLATES XII AND XIII.

AFTER systematically working at the genera *Cypræa* and *Trivia*, and paying particular attention to synonymy, dates of publication of the species, references and figures cited in the original descriptions, etc., I have been induced to publish the results obtained with regard to certain species with the hope that they may be of use to workers on these genera.

In the first place, I noticed that several species in both genera stand at the present time with specific names which have been employed previously to their present use by various authors to designate what they believed at the time to be new species, but which have proved to be synonyms or only varieties of earlier species. Gmelin is the chief offender in this respect, as he described a considerable number of species from figures of early writers, giving very brief and inadequate descriptions, and often describing the same shell in different states of growth.

I had always understood that if a specific name had been used once, even though in error, and therefore became a synonym, it could never be employed again, or, to use a well-known expression, "Once a synonym, always a synonym."¹ On inquiry from various eminent conchologists and nomenclaturists, I find they are all of the same opinion, and state that species bearing a name that has been used before in the same genus must be renamed. Those species which require renaming, with the names I propose for them, will be found in this paper.

The following is the general idea of the rules now usually recognized on which I have made the changes:—

1. A specific name used once, even though a *nomen nudum* or synonym, cannot be used again in the same genus.

2. A name given to a species, believed by the author to be new, and which has proved to be only a variety of a prior species, can retain the original name (being reduced to varietal rank), even though the same name had been used previously either for a good species or for what now is a synonym in the same genus.

3. Two or more species in the same genus can have the same varietal name; e.g., *minor*, *major*, *alba*, *pyriformis*, *oblonga*, etc.

4. A name used to designate a fossil shell, even though now a synonym, cannot be used for a recent shell of the same genus, and vice versa; but a name used to designate a fossil can also be used as a varietal name of a recent form, or the reverse, and any number of varietal names may be standing at the same time in the same fossil and recent genus.

Before attempting these notes, besides the various monographs and works referred to, I have carefully studied Sènor Hidalgo's excellent

¹ Dall, Trans. Wagner Free Inst., 1895, vol. iii, pt. iii, pp. 561-5.

monograph¹ on *Cypræa*, which certainly of its kind is the best published, and to him all those who specialize in the genus are greatly indebted for the trouble and care he has taken in its preparation, and for his exhaustive synonymy. The reasons for differing from his views in certain cases and the conclusions arrived at will appear later on.

While writing this paper Mr. C. D. Sherborn conclusively proved to me that the "Descriptive Catalogue of Shells by John Edward Gray," 1832, was never published, but existed only in a few proof-sheets. It must therefore be regarded in the same light as manuscript and no longer quoted as a publication. The species described in it for the first time must therefore take as their author the next writer who adopted them.

It is most probable, indeed almost certain, that this Catalogue has never been seen except by the officers of the Natural History Museum, where the extant proofs are preserved, and perhaps by one or two who, like myself, have been working there. The reason that it has always been quoted in the various monographs on *Cypræa*, by Reeve, Sowerby, Weinkauff, Roberts, Kicner, Melvill, Hidalgo, etc., is that Sowerby refers to it in his "Conchological Illustrations" (Gray having probably given him a copy), where he quotes the species with Gray as the author and gives references to the Catalogue, which evidently have merely been copied by later writers.

I now give a list of the species of recent *Cypræa* and *Trivia* described by Gray in this Catalogue, quoting the writer who first adopted them, who, as stated above, must be regarded as the author. The place where this author first mentions them should also be considered the place of publication. Where referred to in this paper, I have quoted the proper author, entirely eliminating the "Descriptive Catalogue."

Species first described in the Descriptive Catalogue by Gray, with the references given by him.

- p. 7, No. 48*, *Cypræa Adamsonii*, Gray, *Illust.*, f. 7.
 p. 9, No. 68*, *Cypræa hirundo*, Linn., var. *Owenii*, Gray, *Illust.*, f. 12**.
 p. 10, No. 84, *xanthodon*, Gray, *Illust.*, f. 18.
 p. 11, No. 94a, *Walkerii*, Gray, *Illust.*, f. 22*.
 p. 14, No. 119, *Trivia sanguinea*, Gray, *Illust.*, f. 32.
 p. 14, No. 121, *Trivia globosa*, Gray, *Illust.*, f. 34.
 p. 15, No. 125*, *Trivia fusca*, Gray, *Illust.*, f. 37.
 p. 15, No. 127*, *Trivia nivea*, Gray, Rumph., t. 39, f. P.
 p. 16, No. 134, *Trivia suffusa*, Gray, *Illust.*, f. 41.
 p. 16, No. 136, *Trivia Solandri*, Gray, *Illust.*, f. 43.

Author of the species, with reference to where first described and published.

- Sowerby, *Conch. Illust.*, p. 11, No. 107, f. 7.
 Sowerby, *op. cit.*, p. 6, No. 64, f. 12**.
 (Now admitted to hold specific rank.)
 Sowerby, *op. cit.*, p. 9, No. 88, f. 18.
 Sowerby, *op. cit.*, p. 7, No. 70, f. 22*.
 Sowerby, *op. cit.*, p. 12, No. 115, f. 32.
 Sowerby, *op. cit.*, p. 12, No. 117, f. 34.
 Sowerby, *op. cit.*, p. 13, No. 120, f. 37.
 Sowerby, *op. cit.*, p. 13, No. 122, f. 38*.
 Sowerby, *op. cit.*, p. 13, No. 126, f. 41.
 Sowerby, *op. cit.*, p. 14, No. 128, f. 43.

¹ "Monografía de las especies vivientes del género *Cypræa*," 1906-7.

Besides describing the above species in the "Descriptive Catalogue," Gray also split up the genus *Cypræa*, making the genera *Luponia* and *Trivia* and the subgenera *Aricia* and *Naria*. All with the exception of *Trivia*, which is now shown to be a good genus, are simply sections of *Cypræa*. Their authors, and the place where first adopted, are as follows: *Luponia* and *Trivia*, Sowerby, "Conchological Manual," 1839, pp. 60, 108; *Aricia*, H. & A. Adams, "The Genera of Recent Mollusca," 1854, vol. i, pp. 265, 266; *Naria*, Gray, "Guide to the Systematic Distribution of Mollusca in the British Museum," 1857, pt. i, p. 72. It will be observed that the dates of various species in the "Conchological Illustrations" quoted in this paper, differ from those which have hitherto been considered correct. The dates now cited may, however, be regarded as accurate, as proved by certain information lately acquired (*vide* my paper on the "Conchological Illustrations," which will be published in Part VI of this volume).

I now give some notes on the differences between *Cypræa* and *Trivia*, and the reasons for considering them distinct genera.

In 1839 Sowerby, on conchological grounds, created the genus *Trivia* for that section of *Cypræa* which is characterized by a lighter shell, with ridges or costæ running transversely from the base over the sides and dorsal surface, ending in most cases in a groove or sulcus, sometimes broad and shallow, or narrow and deep, running longitudinally along the centre of the shell. In some species there is no sulcus, and the striæ gradually become less and less until they disappear on the middle of the dorsum, while in others they interlace so that the striæ from one side end in the grooves between those of the other.

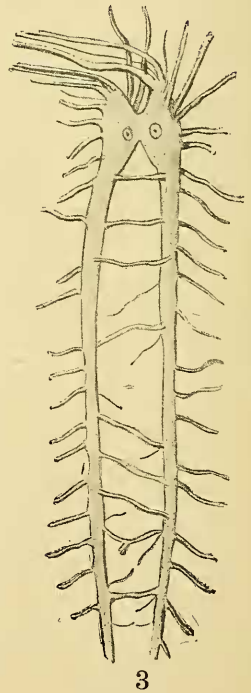
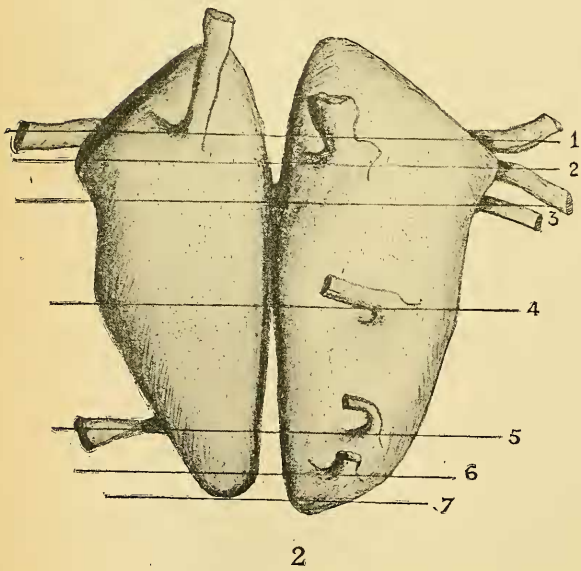
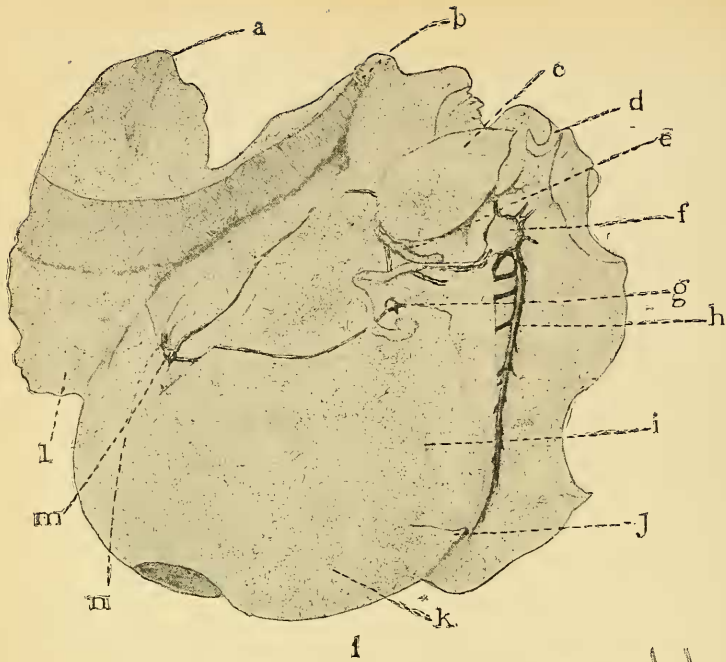
Some writers have considered *Trivia* as a genus, others as a subgenus, while a third class maintain that it is simply a section of *Cypræa*.

When about to revise the nomenclature of the latter genus, this matter was of great importance, because if they were distinct genera they might have the same specific name standing in each, and the nomenclature of one would not interfere with that of the other. On the other hand, if *Trivia* was only a subgenus or section, a good many names would have to be altered as having been used in the one group, although perhaps now only being synonyms of earlier names, but in the other group there were shells bearing these same designations which would have had to be changed.

If *Trivia* was made a genus on purely conchological differences, there was no reason why *Luponia*, *Naria*, *Cypræovula*, *Aricia*, *Gaskoinia*, etc., should not also be considered as genera, as they differ conchologically from the typical *C. mappa*, Linn., almost as much as *Trivia*.

After consulting Mr. E. A. Smith on this subject, it was decided that if any real anatomical difference existed between *Cypræa* and *Trivia* it would be justifiable to regard them as distinct genera, weight also being given for this decision by the difference of the shells.

Mr. H. G. Farmer, New College, Oxford, to whom I am greatly indebted for all the trouble and time he has expended over the matter,



1. CYPRÆA TIGRIS, ANATOMY.
2. TRIVIA ARCTICA, PEDAL GANGLIA.
3. CYPRÆA ARABICA, PEDAL GANGLIA.

very kindly undertook to work out the anatomy of specimens of *Cypræa tigris* and *Trivia arctica*.

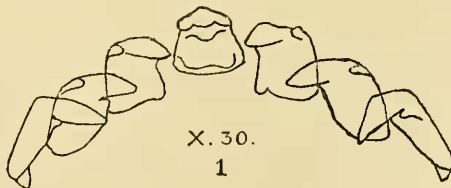
The difference between *Cypræa* and *Trivia* lies first of all in the nervous system of the foot.

In *Cypræa*, as originally described by Bouvier,¹ the pedal centres are in the form of a long pair of cords (Pl. XII, Fig. 3), swollen at their anterior extremities and composed of a central core of nerve fibres, ensheathed by nerve ganglion cells throughout their extent. These two longitudinal pedal cords are connected by a number of transverse commissures, of which the most anterior, connecting the swollen anterior extremities, is the largest and most important. This scalariform system of transverse commissures is, as Bouvier points out, a primitive feature, recalling the condition found in *Patella* and *Paludina* [*Vivipara*].

In *Trivia* the pedal centres are much concentrated when compared with those of *Cypræa*. Whereas in the latter the length of the pedal centres relatively to that of the foot is as 3 to 4, in *Trivia* it is as 1 to 14.

The part corresponding to the swollen anterior ends of the cords in *Cypræa*, with the anterior transverse commissure connecting them, remains; but the posterior elongated cords are very much abbreviated, and, indeed, are so small as to be only recognizable in sections. In dissection they look like a stout pair of nerves given off from the posterior ends of a pair of rounded pedal ganglia. Sections (Pl. XIII, Figs. 1-7), however, show that these apparent nerves are, like the pedal cords of *Cypræa*, ensheathed by ganglion cells to their hindermost ends, and that the nerves supplying the foot are given off from their sides. There are, however, no transverse commissures beyond the one already mentioned, and therefore no trace of the scalariform system observed in *Cypræa*. *Trivia* therefore is more specialized in the nervous system than *Cypræa*.

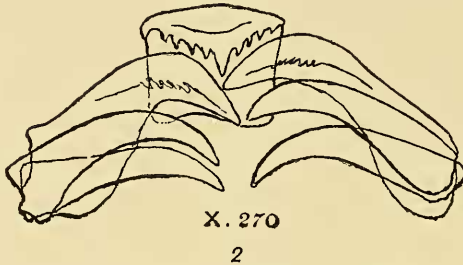
In the second place, the radulæ are distinct; in that of *Cypræa tigris* (Fig. 1) the median tooth has a large central cusp with a small one on each side; the marginal teeth have an elongated and hook-shaped central cusp with a small one of similar shape at its base, but



they are not much longer in proportion than the median, and the ends of the marginal teeth do not extend so as to meet in the middle of each transverse row of the radula ribbon. The lateral teeth have one central cusp and a small pointed one on each side.

¹ Bibl. de l'école des Hautes Etudes, 1887, vol. xxxv, p. 216.

In *Trivia* (Fig. 2) the median tooth has a small pointed central cusp, with four or five small and slightly curved ones on each side of it, while the marginals have no small cusps, but are of such a length that they almost meet in front of the median tooth, and the laterals have 3-5 small cusps situated on each side of the central one.



With a view to ascertaining whether the differences in the nervous system and dentition mentioned above were sufficient to justify generic separation, I submitted the question to Professor G. C. Bourne, whom I wish to thank for his kindness in this and other matters connected with this paper. He maintains that the difference in the nervous system alone is sufficient for separation, and this, together with that of the dentition, leaves no doubt that they should be considered as separate genera. The justification for this conclusion will, it is hoped, be obvious when the differences of nerve systems, radulae, and shells are taken into consideration.

Much discussion has arisen as to whether Bolten's "Museum Boltenianum," 1798, Humphrey's "Museum Calonnianum," 1797, Meuschen's "Index Musci Gronoviani," 1778, and the "Museum Geversianum," 1787, also of Meuschen, ought to be accepted. After getting the opinion of several of the chief authorities on conchology and nomenclature, and after having studied the works themselves and various criticisms, and the reasons for and against accepting them, I have come to the conclusion that the opinion held by Mr. E. A. Smith and Professor W. H. Dall is correct, and I therefore propose adopting it.

1. Bolten must be accepted, as he quoted the names and figures with pages, plates, and volume of previous authors, and was strictly binomial, although he gave no diagnoses of the various species.

2. The "Museum Calonnianum" ought to be entirely ignored; it is simply a sale catalogue, Humphrey's name did not appear on it, and there are no references.

3. Both of Meuschen's publications ought also to be debarred from zoological literature, as he did not use a strictly binomial, but in places a trinomial, system, and his generic names, of which I quote four, viz., *Cassides*, *Globosæ*, *Coni*, and *Porcellanæ*, would not now be allowed as generic appellations. For these reasons it is undesirable to accept his works.

Owing to the reasons already stated for not admitting Meuschen,

his two species, accepted by Hidalgo on grounds of priority, should return to the names by which they have always been known. The two species are—

C. fragiloides, Meusch., becomes, as formerly, *C. cinerea*, Gmelin.

C. amarata, Meusch., in the same way stands as *C. scurra*, Gmelin.

With regard to species described by non-binomial authors, it is now generally accepted that the first binomial writer who published the name should be considered the author; this is far better than employing such terms as (Chemnitz) auctorum, as used by some monographers.

I give below the species described by non-binomial writers, and hitherto accepted, with their proper authors, the typical form in all cases remaining the same—

Cypræa scurra, Chemnitz. Author, Gmelin.

C. histrio, Meuschen. Author, Gmelin.

C. onyx, L., var. *adusta*, Chemnitz. Author, Lamarck.

C. zonata, Chemnitz. First accepted by Gmelin, but he changed the name into 'zonaria.' This name will have to stand, as the references given by him refer to *C. zonata*, Chemnitz.

The practice of some writers of quoting Solander as the author of various species clearly cannot be endorsed, as the Solander catalogue is only manuscript. The writers, therefore, who first published any of the names contained in it must be acknowledged as the authors, although, like Dillwyn, Gray, and others, they quote the species as of Solander.

NOTES ON VARIOUS SPECIES.

CYPRÆA ARABICA, Linn., var. INTERMEDIA, Gray.¹

Hidalgo (p. 369) very properly points out that Gray's name must become a synonym in part of *C. Gillei*, Jousseume.² Gray's description covers var. *eglantina*, Duclos,³ as well as var. *intermedia*.

In 1847 Redfield⁴ quoted var. *intermedia*, Gray, but confused it with *C. arabica*, Linn. Jousseume, believing that *C. Gillei* was a new species, and evidently not knowing that it was the *C. arabica*, L., var. *intermedia*, auct. (*non* Gray), described it as such. Since he was the first to give it a name different from Gray's his name must stand for this variety.

CYPRÆA BOIVINII, Kiener.⁵

After closely examining the figure and description of this species in Kiener's monograph, and some very typical shells in the British Museum, I do not agree with Hidalgo in making it a variety of *C. Listeri*, Gray,⁶ instead of *C. gangrænosa*, Dillwyn,⁷ as has always been maintained.

¹ Zool. Journ., 1825, vol. i, p. 77.

² Le Naturaliste, 1893, p. 171.

³ Mag. de Zool., 1833, pl. xxviii.

⁴ Ann. Lyc. Nat. Hist. New York, vol. iv, p. 488, pl. xvi, fig. 2.

⁵ Coq. Viv., 1845, vol. i, p. 66, pl. xviii, fig. 2.

⁶ Zool. Journ., 1825, vol. i, p. 507.

⁷ Descr. Cat. of Shells, 1817, vol. i, p. 465.

This I think will be evident after comparing *C. Boivinii* with *C. Listeri* and *C. gangrænosa*, as it agrees much better with the latter in colour and marking, possessing the characteristic brown maculations at each end of the shell, which is one of the constant features of *C. gangrænosa*, besides being much closer to it in shape and dentition.

The pale violet-tinged base, which induced Hidalgo to make it a variety of *Listeri*, is noticeable in some colour varieties of *C. gangrænosa*, but nevertheless there is no doubt that *C. Boivinii* is simply a large and pale form of *C. gangrænosa*, as recognized by all previous writers.

It may not be out of place to point out that *C. Reentsii*, Dunker,¹ which is only a variety of *C. gangrænosa*, is quite a different shell from *C. Boivinii*, with which it has been confused. When compared with the latter it is seen to be much smaller, of a bluish colour, with the extremities maculated with brown, the base bluish purple, and the dorsal surface transversely lined with brown.

CYPRÆA CLARA, Gaskoin.²

After comparing specimens of this so-called species with *C. cinerea*, Gmelin,³ I have come to the conclusion that they merely belong to a variety of it. In *C. clara* the teeth are slightly finer, the base is of a whiter colour, and the form is slightly more elongate. In *C. cinerea* there is generally more colour between the teeth, though this is not always present; also, the black markings along the margins of the shell, though generally conspicuous, are by no means constant.

Both these forms come from Central America, and also from the West Indies, being restricted to these regions. I have examined a number of these shells, and although in certain cases have been able to separate them, in others it has been impossible, as they merge into each other. I therefore do not hesitate in considering *C. clara* merely a variety of *C. cinerea*, and cannot understand why Gaskoin compared it to *C. isabella*.

CYPRÆA CRUENTA, Gmelin.⁴

Hidalgo (p. 174) states that the *C. cruenta*, Gmelin, is not the *C. cruenta*, auctorum. The former, he says, equals *C. erronea*, Linn., var., and the *cruenta*, auctorum, is the same as *C. Chinensis*, Gmelin.⁵ Gmelin's description is very inadequate, and the figure in Argenville which he quotes is very poor, so that it is doubtful whether it represents *C. cruenta*, auctorum, or not. Gmelin's description of *C. cruenta* and his reference to Gualtier (Test. T. 15, f. E) make one inclined to agree with Hidalgo that this species is a variety of *C. erronea*, Linn. Under the circumstances I think it would be wise to adopt the name of *C. variolaria*, Lamarek,⁶ about which there is no

¹ Zeitsch. f. Malak., 1852, p. 189, and Novitat. Conch., 1858, pl. ix, figs. 3, 4.

² Proc. Zool. Soc., 1851, p. 13.

³ Syst. Nat., 13th ed., vol. vi, p. 3402.

⁴ Op. cit., p. 3420.

⁵ Op. cit., p. 3421.

⁶ Ann. du Mus., 1810, vol. xvi, p. 91.

doubt, and I entirely agree with M. Deshayes' remarks in connexion with that species.¹

CYPRÆA DUBIA, Gray.²

After searching through all subsequent writers and monographers I have been unable to find a single reference to this species. Mr. E. A. Smith and myself carefully examined the Gray Collection, now in the British Museum, and failed to discover any shell bearing this name. It certainly is not the *C. dubia* of Gmelin,³ which is the *C. exanthema* of Linnæus. The Zool. Miscellany seems to have been unknown or ignored by a considerable number of writers, and probably on this account we find no reference to this species in any work. From the description alone it is impossible to say what Gray's species was, and it must therefore be classed among the "Unidentifiable." *Cypræa bicallosa*, *Trivia exigua*, *C. Friendii*, and *C. similis* were also first described in the same paper, pp. 35-6, though it is generally stated that *T. exigua* and *C. bicallosa* first appeared in the "Descriptive Catalogue," which was a year later.

CYPRÆA FLAVEOLA, Linn.

Hidalgo (pp. 174, 245) states that the *flaveola* of the tenth edition and of the Mus. Ulricæ is a different species to that of the twelfth edition, and maintains that the former is only a colour variety of *C. helvola*, which being so, the *flaveola* of the twelfth edition (which is the *flaveola*, auctorum) cannot retain the appellation given it by Linnæus, as it is later than the tenth edition and the Mus. Ulricæ, where this name was first used, and according to Hidalgo erroneously. He therefore has substituted for the species of the twelfth edition the *C. acicularis*, Gmelin, which he regards as a synonym.

The result of these changes is as follows:—

C. flaveola, tenth edition and Mus. Ulr. = *C. helvola*, Linn., var.

C. acicularis, Gmelin = *C. flaveola*, twelfth edition.

The *C. flaveola*, Linn., therefore entirely disappears.

Mr. E. A. Smith and I have gone into this question, and have come to the following decision, which does not agree with that arrived at by Hidalgo, but which in my opinion seems conclusive. In the first place, I do not admit that the *flaveola* of the tenth edition and of the Mus. Ulricæ is a colour variety of *C. helvola*. The difference lies in the Mus. Ulricæ. The twelfth edition is a copy of the tenth with a slight addition. It is more than probable that the shell described in the Mus. Ulricæ was different from that of the tenth and twelfth editions of the Systema. Yet it is evident that the author supposed them to be the same, since in the twelfth edition we have a reference to the Mus. Ulricæ, in which he again refers to the tenth edition.

The difference does not seem to lie in the fact that in the twelfth edition mention is made of the marginal spots, while there is none in

¹ Anim. sans Vert., 2nd ed., vol. x, p. 511.

² Zool. Misc., 1831, vol. i, p. 36.

³ Syst. Nat., p. 3405.

the tenth edition and the Mus. Ulricæ; it is very probable that in both the latter cases the spots were there, but were not mentioned. Where, however, we do find a difference is, as Hanley¹ points out, the "Nocitur colore supra et subtus flavo" of the Mus. Ulricæ, as compared with the white base of *C. flaveola*, auctorum.

I have examined the specimen now in the British Museum figured in Reeve, to which Hanley refers as being typical of the shell in the Linnæan cabinet; and after comparing it with the descriptions, entirely agree with Hanley that this is the true *flaveola*, Linn., and I do not see why, because a few of the words in the description of the Mus. Ulricæ do not quite agree with the other two descriptions, we should refuse to adopt the *flaveola*, Linn., considering what Hanley has said, and when its identity with the two editions of the Systema is unmistakable. *C. flaveola*, Linn., should therefore be retained in the sense in which it has always been recognized.

With regard to the *C. acicularis* of Gmelin, it is obvious from his description that this shell is a synonym, not of *C. flaveola*, Linn., but of *spurca*, Linn. The figure cited in Martini, and the latter's description, together with the fact that he says he has received it from the "Spanish Sea," all prove this point, and I fail to see how Hidalgo could have made it a synonym of *C. flaveola*. I may perhaps point out that the *labrolineata*, Sow. (as of Gaskoin), is only a variety of *C. flaveola*, Linn., and not of *C. gangrænosa*, Dillwyn, as stated by Sowerby in the Thesaurus and by other writers. It is the same shell as *C. labrolineata*, Gaskoin, and *C. Helenæ*, Roberts. Of this I am certain, as I have examined in the British Museum what is probably one of the co-types of Gaskoin's species, in which, when compared with *C. flaveola*, the teeth are seen to be finer, and to have a fine brown line running down the centre of each from the margins to the aperture. The shell also is of a slightly paler colour.

The conclusions arrived at concerning the species under discussion are as follows:—

1. *C. flaveola*, Linn., Syst. Nat., 10th ed., Mus. Lud. Ulr., 12th ed. (*partim*).
2. *C. spurca*, Linn., Syst. Nat., 10th ed., p. 724.
= *acicularis*, Gmelin, Syst. Nat., 13th ed., vol. vi, p. 3421.
3. *C. flaveola*, Linn., var. *labrolineata*, Gask., Proc. Zool. Soc., 1848, p. 97.
= *Helenæ*, Roberts, Amer. Journ. Conch., 1868, vol. iv, p. 250, pl. xv, figs. 7–10.
= *labrolineata*, Sow. (as of Gask.), Thes. Conch., vol. iv, p. 38, fig. 231.

CYPRÆA FUSCOMACULATA, Pease.

This species was first described in the Proceedings of the Zoological Society, 1865, p. 515, and a second description of it appeared in the American Journal of Conchology, 1868, vol. iv, p. 95, pl. xi, figs. 10

¹ Ipsa Linn. Conch., 1855, p. 193.

and 11, which, except in being slightly fuller, is precisely similar, and in parts word for word the same. Hidalgo asserts that the second description is of a different species, and has named it *C. Dautzenbergi*. After comparing the two descriptions it is obvious that they relate to one and the same species; *C. Dautzenbergi*, Hidalgo, therefore becomes a synonym of *C. fuscomaculata*, Pease.

With regard to the *C. fusco-maculata* (Gray, MSS.) described by Sowerby in the Thesaurus, vol. iv, figs. 372, 373, Mr. Smith very kindly went into this matter with me.

After comparing the two specimens in the British Museum (which are the two figured by Sowerby) with the descriptions and figures of *C. fuscomaculata*, Pease, I have no hesitation in pronouncing them to be identical with the latter species. This appears to be the first time that this has been noticed, as all writers and monographers on this genus have considered them to be distinct species. *Fuscomaculata* having been preoccupied by Pease, Roberts changed the *fusco-maculata* (Gray, MSS.), Sow., to *Adelinæ*, by which name the latter shell has generally been known.

One naturally wonders why two identical shells were both named *fuscomaculata* by different authors, and I think the solution given to me by Mr. Smith is the right one. It is more than probable that two of his own specimens, perhaps even co-types, were give by Pease to Cuming, which were put in the latter's collection (before it was acquired by the British Museum) labelled *C. fuscomaculata*, without any author. When the Thesaurus was written, Sowerby saw there two shells labelled *fuscomaculata*, and seeing there was no author quoted, concluded it was a manuscript name of Dr. Gray which had not been published (and it would not have been the first time this has happened), and therefore published them in his monograph with the result stated above. The fact that there is no mention of a *Cypræa fuscomaculata* ever having been described by Gray in any of his works, and that the two specimens are the only ones in the Museum (we could find none in the Gray Collection), gives weight to this theory.

Of course all this to a certain extent is mere speculation, but what we do know is, first, that the *fuscomaculata*, Pease, was unknown to Sowerby at the time, since there is no reference to it in his work, and secondly, that the *Adelinæ* of Roberts = *fuscomaculata* (Gray, MSS.), Sow., is identical with the *fuscomaculata*, Pease. It may be as well to notice that the figures in the Thesaurus are by no means good illustrations of the shells they represent.

The result derived, therefore, is as follows:—

Cypræa fuscomaculata, Pease, Proc. Zool. Soc., 1865, p. 515.

= *fuscomaculata*, Pease, Amer. Journ. Conch., vol. iv, p. 95.

= *fusco-maculata* (Gray, MSS.), Sow., Thes. Conch., 1870, vol. iv, p. 28, figs. 372, 373.

= *Adelinæ*, Roberts, Man. Conch., 1885, vol. vii, p. 168.

= *Dautzenbergi*, Hidalgo, Monograph Cyp., 1907, p. 362.

I may mention that the two shells in the British Museum are exactly the same size as the one figured by Pease, viz., 13 mm. long, 7 in diam.

CYPRÆA GASKOINII, RVC.,¹ and C. PEASEI, SOW.²

These two forms have generally been considered distinct, but after examining the type of *C. Gaskoinii* in the Natural History Museum and comparing it with a series of *C. Peasei*, Mr. E. A. Smith and I have come to the conclusion that they are identical. There is no difference in the dentition, aperture, marginal spots, or colour pattern, as mentioned by Sowerby, and the shape is exactly similar. The only difference appears to be that in a few cases *C. Peasei* is more pellucid and transparent, but this feature also varies considerably. With a series of shells it is impossible to separate the two, and I therefore feel justified in considering *C. Peasei* simply a synonym of *C. Gaskoinii*, and not entitled even to varietal rank. Moreover, both come from the same locality, and I fail to see the slightest reason for keeping them apart. *C. Gaskoinii*, on the other hand, is a good species, and quite distinct from its nearest congeners, *C. cribraria*, Linn., etc.

CYPRÆA HIRUNDO, LINN.³

Hidalgo (p. 177) has adopted for the type of this species the one quoted on p. 576 of the Mus. Ulricæ, although he unites it with the *C. hirundo* of the Systema, and maintains that *hirundo* (Mus. Ulricæ) equals *neglecta*, Sowerby, and designates *hirundo*, auctorum (which is the typical shell), as *Kieneri*, Hidalgo. The following it is hoped will clear up the misunderstanding.

Linnaeus evidently confused two species under this name. The first, in the tenth edition of the Systema, is the one that has always been accepted as the type, and Hanley (*Ipsa Linnæi Conchylia*, p. 190) says: "and the fact that the *Cypræa hirundo* of authors [Reeve, *Conch. Icon.*, fig. 104] is present in the Linnean cabinet, where it solely answers to the definition of the species, is not without value in confirming the established opinion."

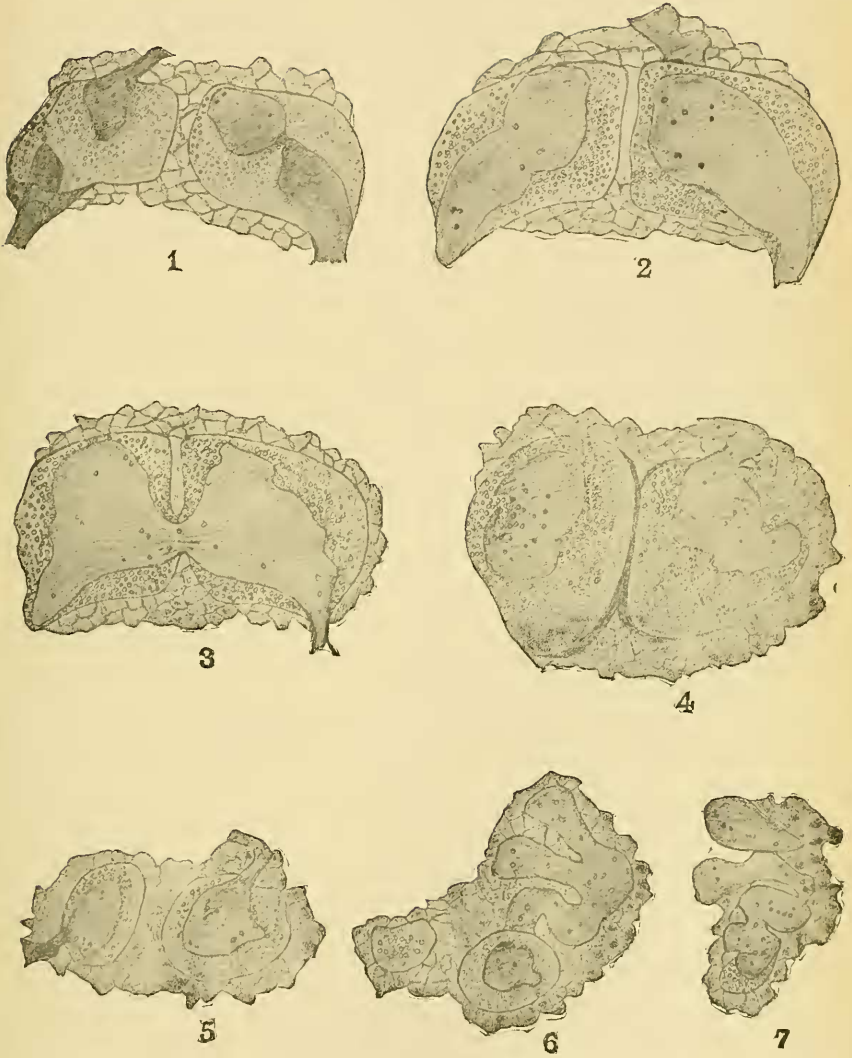
The species in the Mus. Ulricæ is the *C. neglecta*, Sow.,⁴ the chief differences between the two shells being that in *C. hirundo* the teeth are coarser, further apart, and do not extend over the base; while in *C. neglecta* they are finer, closer, and extend over the basal surface. This agrees with "dentibus transversis, extensis rugis per basin exteriorem" of the Mus. Ulricæ. I maintain that if the *hirundo*, Linn., is the *neglecta*, Sow., Hanley would have mentioned the fact, considering both these species are on the same plate in Reeve's *Conch. Icon.*, and I therefore do not see how the species of the Mus. Ulricæ can be taken as the type, ignoring that of the Syst. Nat. which was described six years earlier, and quite a different shell, and I hold the typical *hirundo*, Linn., to be the one quoted in the Syst. Nat., while the species of the Mus. Ulricæ equals the *neglecta*, Sow., which is now generally admitted as

¹ Proc. Zool. Soc., 1846, p. 23.

² Thes. Conch., vol. iv, p. 33, figs. 167, 168.

³ Syst. Nat., 10th ed., p. 722.

⁴ Conch. Illust., p. 6, pl. xiii, fig. 12*.



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a variety of *hirundo*. *C. Kieneri*, Hidalgo, therefore becomes a synonym of *C. hirundo*, Linn.

I may add that I consider the *C. coffea*, Sow.,¹ a distinct species and not a variety of *C. hirundo*, as stated by various monographers. This opinion is based on the difference of shape, colour-marking, and particularly on the teeth being finer and extending over the posterior extremity.

CYPRÆA PRESTONI, n.n. for *C. INTERRUPTA*, Gray.²

The name of this species has to be changed, Bolten³ having previously used the same term. The *C. interrupta*, Bolten, is a *nomen nudum*, there being no description or figure given or even cited. Although Bolten's name is useless, Gray's designation, having been used before, cannot stand, and therefore I have much pleasure in naming this shell *C. Prestoni* after my friend Mr. H. B. Preston.

CYPRÆA HIDALGOI, n.n. for *C. LEUCOSTOMA*, Gaskoin.⁴

The specific name *leucostoma* had been used by Gmelin⁵ to designate a species which Roberts says equals *C. lynx*, Linn. Dillwyn considered it a synonym of *C. Vanelli*, Linn., which is *C. lynx*, Linn., juv., and according to Hidalgo it is the *C. picta*, Gray (?). As this species has no synonyms, I propose to rename it *C. Hidalgoi*, after the author of the recent excellent monograph of this genus.

CYPRÆA LOEBBECKEANA, Weinkauff.⁶

This shell has generally been considered a variety of *C. carneola*, Linn., without the purple-coloured teeth which are characteristic of that species. In the Thesaurus (fig. 322) Sowerby illustrates a shell which is supposed to be the same, a *C. Loebbeckeana*. It is true that the teeth of the specimen illustrated are white, but it is also distinctly three-banded and of a cylindrical shape, and is clearly only a variety of *C. carneola*. *C. Loebbeckeana*, on the other hand, is pyriform, of a uniform pale yellow colour, without any bands, with a white base, and a ridge on the outer edge of the columella. The teeth on the columella lips are long and fine, and are interrupted below the ridge, leaving a gap. In my opinion this shell is not a variety of *C. carneola*, but a good species. Hidalgo makes the shell under consideration a variety of *C. vitellus*. Through the kindness of Mr. E. A. Smith I have been able to examine some pale yellow varieties of *C. vitellus* in the British Museum, but failed to see the slightest resemblance to *C. Loebbeckeana*.

Weinkauff, in his note on this species, says he has inspected 800 specimens of *C. carneola*, but could not link up *Loebbeckeana* with them.

Until we have further proof and more specimens of this shell are

¹ Thes. Conch., vol. iv, p. 10, pl. xxxii, figs. 359, 360.

² Zool. Journ., 1824, vol. i, p. 376.

³ Mus. Bolt., 1798, p. 27.

⁴ Proc. Zool. Soc., 1843, p. 25.

⁵ Syst. Nat., 13th ed., vol. vi, p. 3413.

⁶ Conch. Cab. (*Cypræa*), p. 82, pl. xxiv, figs. 2, 3.

known, it would be best to consider this a distinct species, since after careful search I have been unable to unite it to any other. It certainly is not a variety of *C. carneola*, Linn.

CYPRÆA MILIARIS, Gmelin.¹

The figure in Lister (Hist. Conch., pl. 700, fig. 47), quoted by Gmelin, represents *C. erosa* of Linnæus; the other figure referred to (pl. 701, fig. 48) probably equals *C. ocellata* of Linnæus. The figure referred to in Martini (Conch. Cab., vol. i, pl. xxx, fig. 323) corresponds to the *C. miliaris*, auct. As this species is well established, and the figure and description in Martini agree perfectly with the shell which has always been known as *miliaris*, it is undesirable to make any change, but perhaps it may be well to draw attention to the fact that both of Lister's figures must be eliminated and the species restricted to the figure in Martini. The same applies to *C. guttata* of Gmelin.² Gray has sometimes been quoted as the author, but erroneously, since he himself refers it to Gmelin. This species must be restricted to the latter's reference to Martini (Conch. Cab., vol. i, pl. xxv, figs. 252, 253).

The figure quoted from Lister (pl. 676, fig. 23) equals the young state of *C. viellus* of Linnæus, while the one in Gualtier (Test., pl. xvi, fig. 1) probably represents the same shell. These two references must therefore be eliminated.

CYPRÆA GAMBIENSIS, n.n. for *C. NEBULOSA*, Kiener.³

This name was preoccupied by Gmelin⁴ for a species which, according to Dillwyn and Roberts, equals *C. stercoraria*, Linn., while Hidalgo refers it to *C. eglantina*, Duclos. Personally, after examining the figure in Lister's Conchology, referred to by Gmelin, I am inclined to agree with Dillwyn and Roberts, and now rename this species *C. gambiensis* from the locality which is usually associated with it.

CYPRÆA NOTATA, Gill.⁵

Hidalgo (pp. 176, 443) has united this species with *C. macula*, Angas,⁶ asserting that they are identical. The latter, having been described nine years later, becomes a synonym of Gill's species. I venture to point out that this is not the case. *C. macula* is only a variety of *C. fimbriata*, Gmelin,⁷ being more pyriform, and having generally a larger brown maculation on the dorsal surface than in the typical form. After examining a number of specimens at the British Museum and elsewhere, I am convinced that this form is only a variety of *C. fimbriata*, as it is always possible to link them

¹ Syst. Nat., 13th ed., vol. vi, p. 3420.

² Op. cit., p. 3402.

³ Coq. Viv., 1845, p. 63, pl. xxxii, fig. 3.

⁴ Syst. Nat., 13th ed., vol. vi, p. 3413.

⁵ Ann. Lye. Nat. Hist. New York, 1858, vol. vi, p. 255, pl. ix, figs. 1-3.

⁶ Proc. Zool. Soc., 1867, p. 206, not *maculata* as quoted by some authors.

⁷ Syst. Nat., p. 3420.

together, and is not worthy of specific rank. A. Adams is not the author of this shell, as has always been supposed; he never described a *Cypræa*, and *macula* was a manuscript name published for the first time by Angas, who must be considered the author.

When compared with *C. macula*, *C. notata* is more elongate and narrower, is not pyriform, the back is curved in a different manner, the extremities are produced, the external margins are more thickened, the base is nearly flat, the columellar teeth are finer, closer, and more numerous, and the marginal tooth is larger and stouter. On the outer lip are considerably more teeth, there being twenty-two, as compared to fifteen or seventeen in *C. macula*, which in the latter are coarser than in *C. notata*. In *C. macula* there are no "blurred longitudinal straw-coloured lines," their place being taken by faint brown dots; nor are there any distinct yellow bands along the sides separating the colour of the back from that of the margins.

With all the differences enumerated above, and bearing in mind the elongated rostrate form of *C. notata* and its difference of dentition, I fail to see how these two species can be considered identical. To my mind *C. notata*, Gill, is a distinct and good species, while *C. macula*, Angas, is only a variety of *C. fimbriata*, Gmelin. This species was described by Angas as *C. macula*, and not as *C. maculata*, as quoted by many writers. It should therefore be known by the original appellation.

CYPRÆA PANTHERINA (Solander's MSS.), Dillwyn.¹

Hidalgo (p. 178) makes this species a synonym of *C. vinosa*, Gmelin,² 1791, which species might or might not be the same as *C. pantherina*, Dill. The two figures referred to by Gmelin are practically useless; the figure in the Mus. Kirch. (1709) is simply a copy of the one in the *Recreatio* (1684). I therefore do not think it is advisable to change this well-known name to *C. vinosa*, Gmelin, which is a very doubtful species. However, Perry,³ under the name of *Cypræa obtusa*, gives a very good figure of a colour variety of *C. pantherina* (var. *theriaca*, Melvill). I therefore see no reason why Perry's name should not be accepted, as in this case there is no doubt about the species, and he is six years prior to Dillwyn. As, however, there is a varietal difference in colour between *C. obtusa*, Perry, and *C. pantherina*, Dill., I propose to keep *C. pantherina* as a colour variety of *C. obtusa*, so that in this way the well-known and more common form will still retain its name but be reduced to varietal rank.

CYPRÆA PHYSIS, Brocchi.⁴

Hidalgo (p. 245) gives a note to the effect that the fossil shell is different from the recent. The recent form was first named *C. achatidea* by Sowerby in 1837, and in 1844 Kiener⁵ called it *C. Grayi*. Deshayes ("Anim. sans Vert.," 2nd ed., vol. x, p. 551),

¹ Descr. Cat., 1817, p. 449.

² Syst. Nat., vol. vi, p. 3421.

³ Conch., 1811, pl. xix, fig. 3.

⁴ Conch. foss. Subapp., 1814, vol. ii, p. 284, pl. ii, fig. 3.

⁵ Coq. Viv., p. 20, pl. xxvi, fig. 3.

believing they were identical, united *C. physis* and *C. achatidea*, sinking the latter as a synonym. Since then, till recently, Deshayes was believed to have been right, and the recent shell has been known as *C. physis*. However, on examining and comparing the fossil and recent forms, it will be seen that they are not absolutely similar. In the first place, the fossil is a more solid and ponderous shell, in most cases considerably larger; indeed, Brocchi's figure is almost twice the size of an average recent specimen. Moreover, in the fossil the teeth are stronger, the shell is more deeply umbilicated, the aperture is narrower and more curved, and at the anterior end is less gaping; the external lip is more solid and rounded on the inner edge. The colour also in *C. physis* from the original description is "ad latera alba, vel toto ex fusco lutea," while in the recent shell the sides and margins are of a reddish-brown colour. There is no doubt that the fossil and recent forms are very close; still, there are differences, as shown above. I therefore think that the recent shell ought to return to its original name of *C. achatidea* and be kept separate from the fossil, a practice which is now adopted by most Continental conchologists.

C. achatidea was first published in the Conch. Illust. (*Cypræa*), 1837, pl. cxxxi, fig. 179, and index, p. 3. No description of the species is given, only a figure, and in the index we find *C. achatidea*, Gray. Dr. Gray never described a *C. achatidea*, so it follows that Sowerby must have adopted a manuscript name of Gray's, and published it for the first time in his work. Sowerby, therefore, and not Gray, is the author of *C. achatidea*. *C. Grayi*, Kiener, is a synonym.

The same applies to *C. Reevei*, Sow.¹ Sowerby gives Gray as the author, but the latter did not describe a *C. Reevei*; it again follows that Sowerby adopted a manuscript name, and therefore must be considered the author. Likewise the *Trivia costis-punctata*² was only manuscript in Gaskoin's cabinet till first published by Sowerby.

CYPRÆA PUNCTULATA, Gray.³

This specific name was used by Gmelin,⁴ and according to Hidalgo must stand in place of *C. tabescens*, Dillwyn.⁵ The reason for not accepting the *punctulata* of Gmelin, as Hidalgo suggests, will be seen elsewhere, but anyhow the *punctulata*, Gray, cannot stand. The name *Robertsi*, suggested for it by Hidalgo, must be accepted.

CYPRÆA FUSCORUBRA, n.n. for *C. SIMILIS*, Gray.⁶

After examining the type of this species and the *C. castanea* of Higgins⁷ in the British Museum, I am bound to agree with Roberts

¹ Conch. Illust., pp. 2, 3, pl. viii, fig. 52.

² Sowerby, Thes. Conch., vol. iv, p. 42, pl. 326, figs. 452, 453.

³ Zool. Journ., 1824, vol. i, p. 387.

⁴ Syst. Nat., vol. vi, p. 3404.

⁵ Descr. Cat. Shells, 1817, vol. i, p. 463.

⁶ Zool. Misc., 1831, p. 36.

⁷ Proc. Zool. Soc., 1868, p. 178, pl. xiv, fig. 1.

and Weinkauff that Higgins' shell is merely a specimen in fine condition of the *C. similis* of Gray. Mr. Smith very kindly went into this matter with me, and after looking up the original descriptions, etc., entirely confirms my opinion; I therefore feel justified in reducing these two to one species. Unfortunately, neither of the above names can stand. *Similis* was used by Gmelin to designate a shell which is a synonym of *C. erosa*, Linn., and *castanea* was used first by Bolten for a species which is a synonym of *C. Mauritanica*, Linn., and secondly by Anderson¹ for a form which is unidentifiable. I therefore rename this shell *fuscobrunnea* on account of its dorsal coloration.

CYPRÆA SCOTTII, Gaskoin.²

This species was first described by Gray in the Zoological Miscellany, 1831, vol. i, p. 35, as *C. Friendii*. A note by the editor on p. 330 of vol. v of the Zoological Journal, which is as follows, seems to show that Gray knew that this shell was about to be described by Gaskoin:—"Cypræa Friendii, Gray, Zool. Miscell. named and published by that author after he knew that the shell was here named, described, figured, and ready for publication.—Ed." With that unfriendly spirit that existed at this time among certain conchologists, it seems that, in order to claim the species as his own, Gray anticipated Gaskoin by a short period. Anyhow, in spite of these facts, as *C. Friendii* is prior to *C. Scottii*, the former must undoubtedly stand.

CYPRÆA SOWERBYI, Kiener.³

This specific name was used first by Anton⁴ for a species which equals *C. carneola*, Linn., var. The shell named by Kiener was for a long time confused with *C. zonaria*, Gmelin,⁵ until a note by Reeve (Conch. Ieon., sp. 40) finally settled the matter. The only synonym of this species is *C. ferruginosa*, Kiener,⁶ which is the young state of *C. Sowerbyi*. Unfortunately, this name had already been used by Gmelin for a species which is a synonym of *C. erosa*, Linn.

Dr. Dall therefore proposed to rename the present species *C. Annetta*.⁷

CYPRÆA STAPHYLÆA, Linn., var. LIMACINA, Lam.⁸

C. limacina, Lam., is considered by Hidalgo (pp. 400, 519) as a good species and distinct from *C. staphylæa*. I do not, however, agree with this opinion, but consider Lamarck's species simply a large and smooth variety of *C. staphylæa*, in which the teeth do not extend more than half-way over the base, while the granulation on the dorsal surface is replaced in some cases by large white spots, which are sometimes slightly raised, or by a few scattered and distinct nodules, whilst in others the dorsal surface is of a smooth shining

¹ Archiv für Naturg., 1837, vol. ii, p. 271.

² Zool. Journ., 1831, vol. v, p. 330, pl. xiv, figs. 1-3.

³ Coq. Viv., p. 38, pl. vii, fig. 3.

⁴ Verzeichniss Conch., 1839, p. 97.

⁵ Syst. Nat., vol. vi, p. 3414.

⁶ Op. cit., p. 37, pl. lvi, fig. 3.

⁷ Nautilus, 1909, vol. xxii, p. 125.

⁸ Ann. du Mus., 1810, vol. xvi, p. 101.

brown, entirely destitute of granulations, with a few white spots on the margins. With a series of specimens it is possible to link up the two extremes, thus clearly proving that *C. limacina* is only a variety. With regard to the *C. interstincta*, Wood,¹ which Melvill² considers as a variety and distinct from *limacina* (both of which he regards as varieties of *C. staphylæa*), after examining Wood's figure, which is unaccompanied by a description, I have been unable to see where it differs from *limacina*, and maintain that it is simply another name for the same shell.

Kiener, in his monograph of this genus, pl. xxxv, fig. 1, depicts the typical *limacina* (Col. Lam. et Mus.), while figs. 1a, 1b, and pl. xv, fig. 1, are good illustrations of some of the varieties.

CYPRÆA TABESCENS, Dillwyn.³

In his monograph of this genus, pp. 178 and 484, Hidalgo changed the name of this species from *tabescens* to *punctulata*, Gmelin.⁴ Gmelin founded his species on two figures, of which one represents a young shell, and both are unrecognizable and not in any detail the same as the shell known as *tabescens*. Gmelin's description is absolutely inadequate, and I fail to see how Hidalgo could possibly have made this change. *Cypræa punctulata*, Gmelin, must therefore remain, as it always has been, one of the unrecognizable species described by that author.

While looking up these points I had occasion to refer to the original descriptions of *Cypræa tabescens*, Dill., *teres*, Gmelin, and *subteres*, Weinkauff. With regard to *teres*, Gmelin,⁵ there is not the slightest doubt, the description being good, and the figure referred to representing the typical form of this shell, and agreeing with the description.

Cypræa tabescens, Dill., has generally been considered a good species, and distinct from *C. teres*, Gmelin, but on comparing the descriptions and figures cited, this will be found not to be the case. The shell figured in Martini, Conch. Cab., vol. i, pl. xxviii, figs. 294, 295, quoted by Dillwyn, is *C. cylindrica*, Born,⁶ while Martini, vol. i, pl. xxviii, figs. 296, 297, represents the *C. teres*, Gmelin. The greater part of the rest of the other figures quoted by him have reference to one or other of these two species. It therefore appears that *C. tabescens* was founded chiefly on *C. teres*, Gmelin, and partly on *C. cylindrica*, Born. It follows that *tabescens* cannot be retained as a good species, as it is simply a synonym in part of *C. teres*, Gmelin.

CYPRÆA SUBTERES, Weinkauff.⁷

This is decidedly not a synonym of *C. teres*, as most monographers and writers have asserted. It is only necessary to compare the two

¹ Index Test. Suppl., 1828, pl. iii, fig. 9.

² Mem. Proc. Manchester Soc. (4), 1888, vol. i, p. 232.

³ Descr. Cat., p. 463.

⁴ Syst. Nat., vol. vi, p. 3404.

⁵ Op. cit., p. 3405.

⁶ Index Mus. Vind., 1778, p. 169.

⁷ Conch. Cab., p. 27, pl. viii, fig. 4 ; pl. xiii, figs. 1, 4.

species to at once see the difference. When compared with *C. teres* it is more elongated, cylindrical, rostrated, differs considerably in the size and number of the teeth, and the colour and marking are also different, being of a pink or mauve tinge, while *teres* is pale green or fulvous.

The following figures which were supposed to represent *C. teres* do not do so, but depict this species: Sow., Conch. Illust., fig. 56; Rve., Conch. Icon., pl. xviii, figs. 93*a, b*; Sow., Thes. Conch., vol. iv, pl. xxvii, figs. 259, 260.

CYPRÆA URSELLUS, Gmelin.¹

The *C. ursellus* of Gmelin and the *C. ursellus*, auctorum, are different species. Hidalgo rightly points out (pp. 179, 426) that the *C. ursellus* of Gmelin, Dillwyn, and Lamarck is simply a worn specimen of *C. hirundo* of Linn. This fact is clearly shown by Gmelin's references to Rumphius, Gualtier, and Martini, all of whose figures in shape and marking represent the *C. hirundo* of Linn. The *C. ursellus*, auct., is exceedingly well figured in Kiener's monograph of this genus (pl. xxxiii, figs. 4, 4*a*), and is totally different from Gmelin's species. This being the case, *C. ursellus*, auct., has been renamed by Hidalgo *C. Melvilli*.

After referring to the original figures and descriptions, and examining and comparing the shells, I have come to the following conclusions.

CYPRÆA ARTUFELLI, JOUSS.

This form is only a variety of *C. clandestina*, Linn., agreeing well with specimens of the latter, and is not entitled to specific rank.

CYPRÆA ANNÆ, Roberts.

This species is a flat and broad variety of *C. staphylea*, Linn. Roberts made it a variety of *C. semiplota*, Mighels, which is only a small *staphylea*.

CYPRÆA ATOMARIA, Gmelin, and *C. STERCUSMUSCARUM*, Lam.

These are not even varieties, but simply synonyms of *C. punctata*, Linn.

CYPRÆA ALBUGINOSA, Gray.

C. albuginosa, Gray: Zool. Journ., 1825, vol. i, p. 510, pls. vii, xii, fig. 2.

At the bottom of Gray's description appears the following:—"This beautiful shell was first mentioned in the useful elementary work above quoted (Mawe), but was not described; knowing that my shell is the one intended I have adopted the name." The only reference to this species in Mawe's work, "The Linnean System of Conchology," 1823, is on p. 97: "*albuginosa . . . California . . . Birds eye Cowery." Mawe's name is practically a *nomen nudum*; therefore Gray, who first adopted it, and not Mawe must be considered the author. (* = new species.)

¹ Syst. Nat., vol. vi, p. 3411.

CYPRÆA ARABICA, Linn.

C. arabica, Linn.: Syst. Nat., 10th ed., p. 718.

var. *eglantina*, Duclos: Mag. de Zool., 1833, p. 28, pl. xxviii.

var. *Gillei*, Jouss.: Le Naturaliste, 1893, p. 171, fig.

var. *histrio*, Gmelin: Syst. Nat., vol. vi, p. 3403.

var. *reticulata*, Martyn: Universal Conchologist, 1784, vol. i, pl. xv.

The above so-called species, on account of their variation and because they run into the typical form, should be considered simply varieties of *C. arabica*, and not admitted as good species.

CYPRÆA ANGUSTATA, Gmel.

C. angustata, Gmelin: Syst. Nat., vol. vi, p. 3421.

var. *bicolor*, Gaskoin: Proc. Zool. Soc., 1848, p. 92.

var. *Comptonii*, Gray: Juke's Voyage, 1847, vol. ii, p. 356, pl. i, fig. 3.

var. *declivis*, Sow.: Thes. Conch., vol. iv, p. 31, pl. xxviii, fig. 287; pl. xxx, figs. 328*, 329*.

var. *piperata*, Gray: Zool. Journ., 1825, vol. i, p. 498.

The note respecting *C. arabica* and its varieties applies also to the above four so-called species, which for the same reasons I consider simply varieties of *C. angustata*, Gmelin.

C. pulicaria, Rve. (Proc. Zool. Soc., 1846, p. 23), on account of its narrower and more elongate form and finer teeth, should be regarded as a good species and not a variety of *C. angustata*.

CYPRÆA TIGRIS, Linn., var. ROSSITERI, Dautzenberg.¹

This variety, with a yellow dorsal surface and sparsely spotted with brown, was first described by Melvill as *C. tigris*, Linn., var. *flavonitens*.²

CYPRÆA ERYTHRÆENSIS (Beck MSS.), Sowerby.

This is a manuscript name of Beck's adopted for the first time by Sowerby (Conch. Illust. Index, No. 161, fig. 161), who must be considered the author and not Beck, as quoted by several monographers.

CYPRÆA SURINAMENSIS, Perry.

C. Surinamensis, Perry: Conchology, pl. xx, fig. 4.

From Perry's description and figure it is impossible to definitely say what shell he intended to represent, though most writers have been inclined to believe that it was the *C. Gambiensis*, mihi (*C. nebulosa*, Kiener). It is, however, as already stated, impossible to be certain, and *C. Surinamensis* must therefore remain unidentifiable. The locality given for his species by Perry, Surinam, if correct, which is doubtful, does not tend to strengthen the idea that his species is the *C. Gambiensis*, mihi (*nebulosa*, Kiener), which comes from the Gambia coast.

¹ Journ. de Conch., 1902, p. 341.

² Mem. Proc. Manchester Soc. (4), 1888, vol. i, p. 212.

CYPRÆA SUBVIRIDIS, Reeve.

C. subviridis, Lake: Proc. Zool. Soc., 1835, p. 68.

At the above reference Mr. Lake and not Reeve appears as the author of this species. A note by Reeve, however (Conch. Icon., *Cypræa*, sp. 48), shows that he was the author and that Lake was a typographical error.

CYPRÆA SUBCYLINDRICA, Sow.

C. subcylindrica, Sow.: Thes. Conch., vol. iv, p. 9, pl. xxvii, figs. 269, 270.

This shell is broader and more oval than *C. cylindrica*, Born (Index Mus. Cæsar. Vindob., p. 169, pl. viii, fig. 10), with the teeth not extending so far over the base; it is, however, undoubtedly only a variety of the latter.

CYPRÆA WILHELMINA, Kenyon.

C. Wilhelmina, Kenyon: Proc. Linn. Soc. N.S.W., 1897, vol. xxii, p. 145.

Never having seen the shell, and from the inadequate description, no figure being given, it is impossible to say what this species is.

CYPRÆA MARGINATA, Gaskoin.

C. marginata, Gaskoin: Proc. Zool. Soc., 1848, p. 91.

After examining the unique shell in the British Museum, I am inclined to believe that it is only a young deformed specimen of *C. thersites*, Gaskoin, the margins being flattened and laterally produced so as to form a crenulated ridge on each side of the base. Apart from the above, it agrees well in shape, colour, dentition, etc., with *C. thersites*.

CYPRÆA PETITIANA, Crosse & Fischer.

C. Petitiana, Crosse & Fischer: Journ. de Conch., 1872, vol. xx, p. 213.

I have only seen one example of this shell in the Natural History Museum, which certainly seems very close to *C. pyrvm*, Gmelin, to which I am inclined to unite it as a variety. Before any definite conclusion can be arrived at, it is necessary that a larger series of specimens should be studied.

CYPRÆA MACANDREWI, Sow.

C. Macandrei, Sow.: Thes. Conch., vol. iv, p. 52, pl. xxxvii, figs. 537, 538 (*Macandreæi*).

I have never had the advantage of seeing this shell, but from the figures and description it seems doubtful whether there is any real difference between it and *C. Beckii*, Gaskoin (Proc. Zool. Soc., 1835, p. 203), and I am of Weinkauff's opinion (Conch. Cab., p. 120) that it is probably only a variety of that species.

CYPRÆA MICRODON, Gray, *C. CHRYSALIS*, Kiener, *C. MINORIDENS*, Melvill.

I entirely agree with Mr. Melvill on the changes and explanations given by him in the Journal of Conchology, vol. x, pp. 117-19,

viz., *C. microdon*, Gray (= *chrysalis*, Kien.), *C. minoridens*, Melv. (= *microdon*, auct.), and I consider them good species and distinct from *C. fimbriata*, Gmelin.

CYPRÆA RASHLEIGHANA, Melvill.

C. Rashleighana, Melvill: Journ. of Conch., 1887, vol. v, p. 288, pl. ii, fig. 26.

This shell, judging by the specimens I have seen, is a good species, and is figured in the Conch. Icon., pl. xiv, fig. 66a.

TRIVIA CANDIDULA, Gaskoin.

T. candidula, Gaskoin: Proc. Zool. Soc., 1835, p. 200.

On p. 201 (loc. cit.) Gaskoin mentions that this shell was also described about the same time by Duclos as *C. olorina*, and by Beck as *C. approximans*. After careful search I have failed to discover that the two latter names were ever published, though they are both given as synonyms of *candidula*, Gask., by Roberts, Reeve, Sowerby, Weinkauff, and Hidalgo, all of whom merely give as reference Proc. Zool. Soc., 1835, p. 201.

TRIVIA CORINNEÆ, n.n. for T. AFFINIS, Marrat.¹

This name being preoccupied for a fossil by Dujardin (Mém. Soc. Géol. France, 1837, vol. ii, p. 304, pl. xix, fig. 12), I propose to substitute that of *Trivia Corinneæ*. The species appears to be closely related to *T. pacifica*, Gray, but is slightly more elongate and has no dorsal sulcus.

TRIVIA INSECTA, Mighels.

T. insecta, Mighels: Proc. Bost. Soc., 1845, vol. ii, p. 24.
= *hordacea*, Kiener: Coq. Viv., 1845, p. 149, pl. liv, fig. 5.

TRIVIA NAPOLINA, Kiener.

T. napolina (Duclos MSS.), Kiener: Coq. Viv., p. 144, pl. liii, fig. 3.
= *obscura*, Gask.: Proc. Zool. Soc., 1848, p. 94.

TRIVIA ORYZA, Lamarck.

T. oryza, Lam.: Ann. du Mus., 1810, vol. xvi, p. 104.
= *Sandwichensis*, Sow.: Thes. Conch., vol. iv, p. 57.
= *intermedia*, Kiener: Coq. Viv., p. 145, pl. liv, fig. 1.
= *scabriuscula*, Gray: Zool. Journ., vol. iii, p. 364.

With regard to *T. oryza*, Lam., and *T. scabriuscula*, Gray, they agree in size, sculpture, shape, colour, and in the extremities being produced, and in fact *scabriuscula* is only a synonym of *T. oryza*, Lam., to which it has been united by Mr. E. A. Smith in the British Museum Collection.

TRIVIA GLOBOSA, Sowerby.

T. globosa, Sow.: Conch. Illust., 1832, p. 12, No. 117, fig. 34.
= *pilula*, Kiener: Coq. Viv., p. 151, pl. liv, fig. 2.
= *sphærulea*, Mighels: Proc. Bost. Soc., 1845, vol. ii, p. 24.

¹ Ann. Mag. Nat. Hist., 1867, vol. xx, p. 215.

TRIVIA NIVEA, Sowerby.

T. nivea, Sow. : Conch. Illust., 1832, p. 13, No. 122, fig. 38*.
= *scabriuscula*, Kiener (*non* Gray) : Coq. Viv., p. 133, pl. xliii, fig. 3.

TRIVIA SUFFUSA, Sowerby.

T. suffusa, Sow. : Conch. Illust., 1832, p. 13, No. 126, fig. 41.
= *T. Armandina* (Duclos MSS.), Kiener : Coq. Viv., p. 140, pl. xlvi, fig. 2.

TRIVIA CALIFORNICA, Gray.

This species was first described by Gray as *T. Californiana*.¹ In 1832 Sowerby² refers to the same species under the name *Californica*, which has been used ever since by subsequent monographers, and like Hidalgo, I think that the original appellation should be employed.

TRIVIA EUROPÆA, Montagu.³

After reading Pulteney's description of *Trivia arctica*,⁴ it will at once be perceived that this shell is the *T. Europæa* of Montagu, and I entirely agree with Hidalgo (p. 263) in reducing *Europæa* to a variety, but would point out that the figure he quotes (pl. xxii, fig. 6, in the Dorset catalogue) does not represent *arctica* but *pediculus*, Linn., as it was intended to do.

Pulteney's description, which is as follows, was published in 1799, while Montagu's did not appear till 1808.

Trivia arctica.—"Shell differs from the foregoing [*T. pediculus*] in being smaller and in wanting the longitudinal furrow on the back, and in being without spots. I have found it at Poole and Weymouth." As will be seen, he chose for his type the unspotted shell, while Montagu's type is the one with the brown spots on the dorsal surface. The latter in his description says, "The *Cypræa Europæa* with spots, and that without spots termed *arctica*, may be considered as perfectly formed varieties." In order, therefore, in some way to keep the well-known name, I propose to call Montagu's species *T. arctica*, Pult., var. *Europæa*, Mont.

I may perhaps add that the variety *minor* described by Marshall⁵ is simply a small *T. arctica* (*ex typo*), and not the same as var. *minor* of Monterosato.⁶ The latter is the *T. Mollerati*, Locard,⁷ which, although considered by some as a species, seems to be simply a small globose form of *T. arctica* with the costæ slightly more pronounced. At most *T. Mollerati* is only a variety of *T. arctica*, and certainly not a good species, and is the same as *T. globulosa* (Monterosato MSS.), Locard, Coquil. mar. Corse, 1900, p. 32.

¹ Zool. Journ., 1828, vol. iii, p. 365.

² Conch. Illust., p. 13, No. 127, fig. 42.

³ Test. Brit. Suppl., 1808, p. 88.

⁴ Cat. Dorset, 1799, p. 39.

⁵ Journ. of Conch., 1893, vol. vii, p. 263.

⁶ Enum. e Sinon. delle Conch. Mediterranee, 1878, p. 49.

⁷ L'Échange, 1894, p. 131.